

Commercializing Department of Energy Technologies: Success Stories

Entrepreneurs in clean energy, medicine, advanced manufacturing, information technology, and other fields will build the new industries of the 21st century, and help solve some of our toughest global challenges. The country's National Laboratories are playing a key role in helping start-ups, and in some cases established corporations, meet those challenges while positioning the U.S. to be a leader in major industries.

Ampulse Corp., Oak Ridge sign licensing agreement for photovoltaic technology – Ampulse Corporation is a venture capital-backed company leveraging proprietary and patented technology developed at the National Renewable Energy Laboratory (NREL) and Oak Ridge National Laboratory (ORNL), focused on crystalline-silicon thin-film photovoltaic technology for the solar marketplace. Ampulse technology is packaged into a flexible and easy-to-install form factor that affords the lowest total system cost per watt of any solar PV technology. As a result, Ampulse products can be customized to address a wide range of specific market applications.

GM, Argonne sign licensing deal for advanced battery chemistry – General Motors Co. and Argonne National Laboratory have reached a worldwide licensing agreement to use Argonne's patented composite cathode material to make advanced lithium-ion batteries that last longer between charges and can charge at higher voltages.

Jefferson Lab, Dilon Technologies Inc: New Lens May Detect Breast Cancer, Sans Scalpel - Newport News-based Dilon Technologies Inc. and Jefferson Laboratory have developed a system that could save thousands of lives and millions of dollars annually in the battle against breast cancer. The "gamma imaging" system is far more powerful in detecting tiny tumors than conventional X-ray mammography machines. X-ray mammograms allow doctors to see clumps of dense tissue in the breast; cancer tumors tend to be dense. But many women have ordinary breast tissue that is dense, which can sometimes hide or even be mistaken for tumors. Dilon's system, using technology licensed from the Department of Energy's Jefferson Laboratory, uses gamma imaging to detect cancers. The system reveals fast-growing tissue in the breast; cancer tissue grows faster than ordinary tissue. Used alongside mammography, this different lens allows physicians to see the breast more clearly and differentiate benign from cancerous tissue.

Lawrence Livermore, Cepheid: Detecting, Diagnosing Health Threats – In 1997 the Lawrence Livermore National Laboratory (LLNL) technology for rapid PCR thermocycling was licensed to startup company Cepheid. With venture investment and SBIR funding, Cepheid developed the first commercial version of a portable, battery-operated, analytical thermal cycler for real-time, quantitative nucleic acid analysis.

Cepheid products based on LLNL technology include the Smart Cycler and GeneXpert instruments which rapidly perform a broad range of genetic tests, from identifying infectious organisms to evaluating at-risk populations for the early detection of disease. As an early example, following the attack on September 11, 2001, Cepheid was awarded a contract to supply the US Postal Service with biohazard detection capability in its mail distribution centers. Cepheid is now an international company with revenues, in 2009, of \$170 million.